इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 6193 (1971): Methods of tests for monoaxially oriented high density polyethylene Polypropylene Tapes [TXD 23: Textile Materials made from Polyolefins]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

AMENDMENT NO. 2 NOVEMBER 1935

TO

IS:6193-1971 METHODS OF TESTS FOR MONOAXIALLY ORIENTED HIGH DENSITY POLYETHYLENE TAPES

(*Page 1, clause 5.3, line 3*) - Substitute '140 KN/m^2 (1.428 kgf/cm^2)' *for* '140 kN/m^2 (0.01015 kgf/cm^2)'.

(TDC 10)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 1 JULY 1985
TO
IS:6193-1971 METHODS OF TESTS FOR MONOAXIALLY ORIENTED HIGH DENSITY POLYETHYLENE TAPES

(*Page 1, title*) – Substitute the following for the existing title:

'*Indian Standard*

METHODS OF TESTS FOR MONOAXIALLY ORIENTED HIGH DENSITY POLYETHYLENE OR POLYPROPYLENE TAPES'

(*Page 1, clause 1, line 2*) – Add the words 'or polypropylene' between 'polyethylene' and 'tapes'.

(*Page 1, clause 2.1, line 1*) – Add the words 'or polypropylene' between 'polyethylene' and 'tapes'.

(TDC 47)

Reprography Unit, BIS, New Delhi, India

UDC 677·754 [677·494·742·2] 677·01 (Third Reprint MARCH 1992) IS : 6193 - 1971

Indian Standard

METHODS OF TESTS FOR MONOAXIALLY ORIENTED HIGH DENSITY POLYETHYLENE TAPES

1. Scope — This standard prescribes methods for determining the following characteristics of monoaxially oriented high density polyethylene tapes:

a) Linear density;
b) Width;
c) Thickness;
d) Breaking load, tenacity and extension; and
e) Heat shrinkage.

2. Sampling

2.1 *Lot* — In any consignment the polyethylene tapes of the same width shall be grouped together to constitute a lot.

2.1.1 Unless otherwise agreed to between the buyer and the seller the number of packages of tapes to be selected from a lot shall be as given below. These packages shall be selected at random and to ensure randomness of selection IS : 4905-1968 'Methods for random sampling' may be used.

Lot Size	*Sample Size*
Up to 150	5
151 to 500	8
501 to 3 000	13
3 001 and above	20

2.2 The number of packages selected according to **2.1.1** shall be examined for all the characteristics. The lot shall be considered in conformity with the requirements of the relevant specification if the specimens drawn from all the packages satisfy the relevant requirements.

3. Atmospheric Conditions for Testing — The tests shall be carried out at a temperature of 27 ± 2°C and at 65 ± 2 percent relative humidity.

4. Conditioning of Test Specimens — Prior to test, the test specimens shall be conditioned in the atmosphere given in 3 above for at least 24 hours. Where it is not possible to carry out tests in the above atmosphere, the tests shall be carried out immediately after removal from the conditioned atmosphere.

Note — Certain properties, particularly tensile measurements vary according to the ageing of the specimen. Where it is considered essential to determine the ultimate values, the test specimens should be aged for at least 7 days after manufacture prior to testing.

5. Test Methods

5.1 *Linear Density* — The linear density of tape shall be determined in accordance with the method prescribed in IS : 1226-1957 'Method for determination of linear density (mass per unit length) in denier units (or tex units) of continuous filament rayon yarn and acetate yarn'.

5.2 *Width* — The width of the tape shall be determined by measuring with a steel rule having 0·1 mm divisions. The width shall be measured to the nearest 0·1 mm. The average of 10 readings shall be taken over a length of not less than 2 m and reported as the mean width of the tape.

5.3 *Thickness* — The thickness of the tape shall be determined by means of suitably calibrated spring-loaded dial micrometer. The thickness shall be measured to an accuracy of 2 μm. The pressure applied by the contact foot of the dial micrometer shall be not less than 140 kN/m² (0·010 15 kgf/cm²). Ten readings shall be taken over a length of not less than 2 m at regular intervals and the mean reported as the thickness of the tape. A tolerance of ±5 percent on the mean value shall be permissible.

Silk, Man-Made Fibre and Products Sectional Committee, TDC 10; Textile Materials Made from Polyolefins (Excluding Cordages) Subcommittee, TDC 10 : 6 [Ref : Doc : TDC 10 (1328)]

Adopted 28 May 1971

© August 1972, BIS

Gr 1

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

5.4 Breaking Load, Tenacity and Extension

5.4.1 The breaking load and extension of the tape shall be determined by using a constant-rate-of-extension machine with a test length of 500 mm between the grips in acccrdance with IS : 1670-1960 'Method for determination of breaking load (strength), elongation at break and tenacity of single strand of cotton yarn (by constant-rate-of-traverse machine)'.

5.4.2 The tenacity of the tape shall be computed by dividing breaking load in grams by linear density in tex.

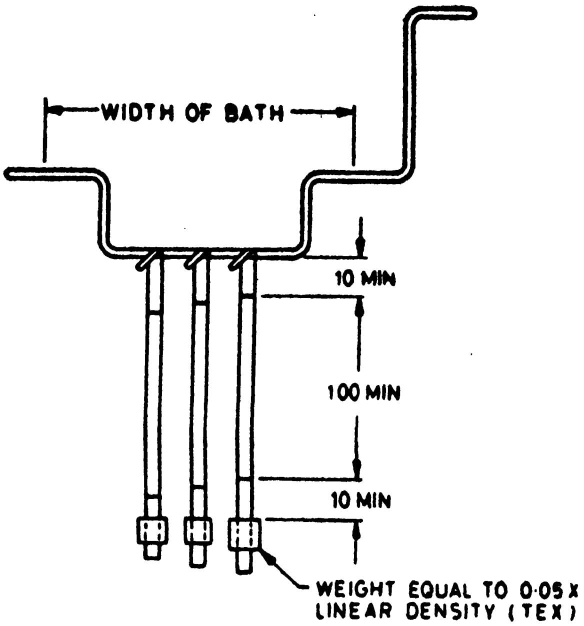
5.5 Heat Shrinkage

5.5.1 *Apparatus*

a) A water-bath sufficiently deep for the specimen to be fully immersed and capable of being controlled at a temperature of 95 ± 0·5°C.

b) A specimen holder to enable the specimens to be fully immersed. A piece of heavy gauge wire bent to a suitable shape (*see* Fig. 1) is convenient.

c) A supply of lead in wire or sheet form for fashioning weights to apply tension to the specimens.



All dimensions in millimetres.

FIG. 1 APPARATUS FOR HEAT SHRINKAGE

5.5.2 *Test specimens* — Five specimens each about 150 mm long are required.

5.5.3 *Procedure* — The linear density of the tape is first determined according to 5.1. Lead weights are prepared, each having a mass in grams equal to 0·05 times the linear density value in tex (or 0·006 times the linear density value in denier). One end of each specimen is tied to the specimen holder and one of the prepared weights is attached to the other. Two marks are made on each tape such that:

a) the distance between the marks is at least 100 mm,

b) the distance from the top mark to the specimen holder is at least 10 mm, and

c) the distance from the bottom mark to the point of attachment of the weight is at least 10 mm (*see* Fig. 1).

With the specimen holder clamped, so that the specimens are hanging vertically under tension imposed by the attached weights, the distance between the insides of the 2 marks is measured to an accuracy of ± 0·5 mm. The specimens are then totally immersed in water for 10 minutes. The bath shall be of such a depth that the weights are supported only by the tape, that is, the weights shall not be allowed to rest on the bottom of the bath. On removal from the bath, the tapes are laid horizontally on absorbent paper and allowed to cool for 10 minutes. Surplus water is wiped off from the tapes; the specimen holder is reclamped so that the tapes again hang vertically and the distance between the 2 marks is re-measured.

5.5.4 *Results* — Express the shrinkage as a percentage shrinkage at the temperature at which the test was carried out. Percentage shrinkage is defined by the following formula:

$$\text{Percentage shrinkage} = \frac{\text{original length} - \text{final length}}{\text{original length}} \times 100$$

EXPLANATORY NOTE

In this standard, where applicable, existing standard methods of tests have been adopted. New methods of tests have been given to measure properties for which no suitable methods exist.